```
Your SELECT statement is:
    s ((computer?()(aided or assisted or simulat?))(3n)(noise()reduc?)) not
py>2000

            Items   File
            -----   ----
                6      2: INSPEC_1969-2005/Dec W3
               47      6: NTIS_1964-2005/Jan W1
                7      8: Ei Compendex(R)_1970-2005/Dec W4
                3     15: ABI/Inform(R)_1971-2005/Jan 08
                1     16: Gale Group PROMT(R)_1990-2005/Jan 10
                1     20: Dialog Global Reporter_1997-2005/Jan 09
                6     34: SciSearch(R) Cited Ref Sci_1990-2005/Jan W1
                1     35: Dissertation Abs Online_1861-2004/Dec
                1     36: MetalBase_1965-20050105
                4     62: SPIN(R)_1975-2005/Oct W5
                5     63: Transport Res(TRIS)_1970-2005/
               13     73: EMBASE_1974-2005/Jan W1
        Examined  50 files
                2     81: MIRA - Motor Industry Research_2001-2004/Nov
                1     88: Gale Group Business A.R.T.S._1976-2005/Jan 06
                2     94: JICST-EPlus_1985-2005/Dec W1
               10     95: TEME-Technology & Management_1989-2004/Jun W1
                1     96: FLUIDEX_1972-2004/Dec
                1     99: Wilson Appl. Sci & Tech Abs_1983-2004/Nov
                1    103: Energy SciTec_1974-2004/Dec B2
                9    104: AeroBase_1999-2005/Jan
>>>File 115: Prefix "PY" is undefined
                1    115: Research Centers & Services_1994-2004/OCT
        Examined 100 files
               33    144: Pascal_1973-2004/Dec W1
                2    148: Gale Group Trade & Industry DB_1976-2005/Jan 10
                1    155: MEDLINE(R)_1951-2005/Dec W3
                2    206: ONTAP(R) NTIS_
                1    208: ONTAP(R) Ei Compendex(R)_
        Examined 150 files
                1    240: PAPERCHEM_1967-2004/Dec W4
        Examined 200 files
                2    315: ChemEng & Biotec Abs_1970-2004/Dec
                2    323: RAPRA Rubber & Plastics_1972-2004/Dec
        Examined 250 files
                7    440: Current Contents Search(R)_1990-2005/Jan 07
        Examined 300 files
                2    484: Periodical Abs Plustext_1986-2005/Jan W1
        Examined 350 files
        Examined 400 files
>>>I/O error in file 606
                2    610: Business Wire_1999-2005/Jan 09
>>>I/O error in file 619
                1    621: Gale Group New Prod.Annou.(R)_1985-2005/Jan 10
                1    649: Gale Group Newswire ASAP(TM)_2005/Jan 03
        Examined 450 files
        Examined 500 files
>>>I/O error in file 781
        Examined 550 files
Processing
```

```
Your SELECT statement is:
   s SoundPLAN and (wall()design)

            Items    File
            -----    ----
        Examined  50 files
        Examined 100 files
        Examined 150 files
        Examined 200 files
        Examined 250 files
        Examined 300 files
        Examined 350 files
        Examined 400 files
        Examined 450 files
        Examined 500 files
>>>I/O error in file 781
        Examined 550 files
                1    991: NewsRoom 2004 Jan 1-2004/Sep 30

    1 file has one or more items; file list includes 562 files.
    One or more terms were invalid in one file.
```

```
Your SELECT statement is:
    s (SoundPLAN and (Braunstein or Berndt))

            Items    File
            -----    ----
                1     15: ABI/Inform(R)_1971-2005/Jan 08
        Examined  50 files
                1     96: FLUIDEX_1972-2004/Dec
        Examined 100 files
        Examined 150 files
                1    225: DIALOG(R):Domain Names  1997 - Sep. 2004
        Examined 200 files
        Examined 250 files
        Examined 300 files
        Examined 350 files
        Examined 400 files
        Examined 450 files
        Examined 500 files
>>>I/O error in file 781
        Examined 550 files

    3 files have one or more items; file list includes 562 files.
    One or more terms were invalid in one file.
```

```
Your SELECT statement is:
    s ((enter? or input? or specif??? or indicate? ?)(5n)(desired or
required)(3n)(level? ?)(2n)noise) and ((recommend? or suggest? or output?
or calculat? or estimat?)(3n)(parameter? ? or solution? ? or dimension? ?
or thickness?))

              Items    File
              -----    ----
                  1      16: Gale Group PROMT(R)_1990-2005/Jan 10
       Examined  50 files
                  1      88: Gale Group Business A.R.T.S._1976-2005/Jan 06
       Examined 100 files
                  2     148: Gale Group Trade & Industry DB_1976-2005/Jan 10
                  2     180: Federal Register_1985-2005/Jan 07
       Examined 150 files
       Examined 200 files
Processing
                  5     348: EUROPEAN PATENTS_1978-2005/Jan W01
Processing
>>>File 349 processing for ENTER? stopped .at ENTEROKMIASE
                  9     349: PCT FULLTEXT_1979-2002/UB=20050106,UT=20041230
       Examined 250 files
       Examined 300 files
       Examined 350 files
       Examined 400 files
>>>I/O error in file 619
Processing
Processing
Processing
Processing
                 24     654: US Pat.Full._1976-2005/Jan 06
       Examined 450 files
       Examined 500 files
>>>I/O error in file 781
       Examined 550 files


    7 files have one or more items; file list includes 562 files.
    One or more terms were invalid in 6 files.
```

```
Set      Items   Description
S1          44   ((ENTER? OR INPUT? OR SPECIF??? OR INDICATE? ?)(5N)(DESIRED
                 OR REQUIRED)(3N)(LEVEL? ?)(2N)NOISE) AND ((RECOMMEND? OR SUG-
                 GEST? OR OUTPUT? OR CALCULAT? OR ESTIMAT?)(3N)(PARAMETER? ? OR
                 SOLUTION? ? OR DIMENSION? ? OR THICKNESS?))
S2          42   RD (unique items)
S3          25   S2 NOT PY>2000
File  16:Gale Group PROMT(R) 1990-2005/Jan 10
         (c) 2005 The Gale Group
File  88:Gale Group Business A.R.T.S. 1976-2005/Jan 06
         (c) 2005 The Gale Group
File 148:Gale Group Trade & Industry DB 1976-2005/Jan 10
         (c)2005 The Gale Group
File 180:Federal Register 1985-2005/Jan 07
         (c) 2005 format only The DIALOG Corp
File 348:EUROPEAN PATENTS 1978-2005/Jan W01
         (c) 2005 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20050106,UT=20041230
         (c) 2005 WIPO/Univentio
File 654:US Pat.Full. 1976-2005/Jan 06
         (c) Format only 2005 The Dialog Corp.
?
```

```
s ((computer?(5n)simulat?(5n)acoustic?) and (noise(2n)reduc?)) not
py>2000

           Items    File
           -----    ----
               5       2: INSPEC_1969-2005/Dec W3
              23       6: NTIS_1964-2005/Jan W1
              94       8: Ei Compendex(R)_1970-2005/Dec W4
               1      15: ABI/Inform(R)_1971-2005/Jan 08
               1      34: SciSearch(R) Cited Ref Sci_1990-2005/Jan W1
               3      35: Dissertation Abs Online_1861-2004/Dec
               3      47: Gale Group Magazine DB(TM)_1959-2005/Jan 10
               3      62: SPIN(R)_1975-2005/Oct W5
               2      63: Transport Res(TRIS)_1970-2005/
               4      73: EMBASE_1974-2005/Jan W1
        Examined  50 files
               1      81: MIRA - Motor Industry Research_2001-2004/Nov
>>>File 85: Prefix "PY" is undefined
               1      85: Grants_2005/Jan
               3      88: Gale Group Business A.R.T.S._1976-2005/Jan 06
               3      94: JICST-EPlus_1985-2005/Dec W1
              41      95: TEME-Technology & Management_1989-2004/Jun W1
               1      96: FLUIDEX_1972-2004/Dec
               1     103: Energy SciTec_1974-2004/Dec B2
>>>File 115: Prefix "PY" is undefined
               1     115: Research Centers & Services_1994-2004/OCT
               1     141: Readers Guide_1983-2004/Sep
        Examined 100 files
              12     144: Pascal_1973-2004/Dec W1
               2     148: Gale Group Trade & Industry DB_1976-2005/Jan 10
               1     155: MEDLINE(R)_1951-2005/Dec W3
               1     208: ONTAP(R) Ei Compendex(R)_
        Examined 150 files
        Examined 200 files
               2     323: RAPRA Rubber & Plastics_1972-2004/Dec
>>>File 348 processing for COMPUTER? stopped at COMPUTER40
               4     348: EUROPEAN PATENTS_1978-2005/Jan W01
>>>File 349 processing for COMPUTER? stopped at
        COMPUTERTOMOGRAPHIEEINRICHTUNGEN
>>>File 349 processing for REDUC? stopped at
        REDUCTIONOFTHENUMBEROFSTOREDSTATESBYPR
               2     349: PCT FULLTEXT_1979-2002/UB=20050106,UT=20041230
        Examined 250 files
               1     440: Current Contents Search(R)_1990-2005/Jan 07
        Examined 300 files
               3     484: Periodical Abs Plustext_1986-2005/Jan W1
        Examined 350 files
        Examined 400 files
>>>I/O error in file 619
              10     654: US Pat.Full._1976-2005/Jan 06
        Examined 450 files
        Examined 500 files
>>>I/O error in file 781
        Examined 550 files
```

```
Set      Items    Description
S1         214    ((COMPUTER?(5N)SIMULAT?(5N)ACOUSTIC?) AND (NOISE(2N)REDUC?-
                  )) NOT PY>2000
S2         188    RD (unique items)
S3          16    S2 AND (ROOM OR ROOMS OR BUILDING? ? OR OFFICE? ?)  ~kevc.
File    2:INSPEC 1969-2005/Dec W3
           (c) 2005 Institution of Electrical Engineers
File    6:NTIS 1964-2005/Jan W1
           (c) 2005 NTIS, Intl Cpyrght All Rights Res
File    8:Ei Compendex(R) 1970-2005/Dec W4
           (c) 2005 Elsevier Eng.  Info. Inc.
File   15:ABI/Inform(R) 1971-2005/Jan 08
           (c) 2005 ProQuest Info&Learning
File   34:SciSearch(R) Cited Ref Sci 1990-2005/Jan W1
           (c) 2005 Inst for Sci Info
File   35:Dissertation Abs Online 1861-2004/Dec
           (c) 2004 ProQuest Info&Learning
File   47:Gale Group Magazine DB(TM) 1959-2005/Jan 10
           (c) 2005 The Gale group
File   62:SPIN(R) 1975-2005/Oct W5
           (c).2005 American Institute of Physics
File   63:Transport Res(TRIS) 1970-2005/
           (c) fmt only 2005 Dialog Corp.
File   73:EMBASE 1974-2005/Jan W1
           (c) 2005 Elsevier Science B.V.
File   81:MIRA - Motor Industry Research 2001-2004/Nov
           (c) 2004 MIRA Ltd.
File   85:Grants 2005/Jan
           (c) 2005 ORYX Press
File   88:Gale Group Business A.R.T.S. 1976-2005/Jan 06
           (c) 2005 The Gale Group
File   94:JICST-EPlus 1985-2005/Dec W1
           (c)2005 Japan Science and Tech Corp(JST)
File   95:TEME-Technology & Management 1989-2004/Jun W1
           (c) 2004 FIZ TECHNIK
File   96:FLUIDEX 1972-2004/Dec
           (c) 2004 Elsevier Science Ltd.
File  103:Energy SciTec 1974-2004/Dec B2
           (c) 2005 Contains copyrighted material
File  115:Research Centers & Services 1994-2004/OCT
           (c) 2004 Gale Research Inc.
File  141:Readers Guide 1983-2004/Sep
           (c) 2004 The HW Wilson Co
File  144:Pascal 1973-2004/Dec W1
           (c) 2004 INIST/CNRS
File  148:Gale Group Trade & Industry DB 1976-2005/Jan 10
           (c)2005 The Gale Group
File  155:MEDLINE(R) 1951-2005/Dec W3
           (c) format only 2005 The Dialog Corp.
File  208:ONTAP(R) Ei Compendex(R)
           (c) 1997 Elsevier Eng. Info. Inc.
File  323:RAPRA Rubber & Plastics 1972-2004/Dec
           (c) 2004 RAPRA Technology Ltd
File  440:Current Contents Search(R) 1990-2005/Jan 07
           (c) 2005 Inst for Sci Info
File  484:Periodical Abs Plustext 1986-2005/Jan W1
           (c) 2005 ProQuest
```

## Description:

CARA (**C**omputer **A**ided **R**oom **A**coustics) is a very advanced computer program for computing and optimizing **Room Acoustics** of arbitrary rooms. CARA is based on the sound source imaging method in combination with a back tracing procedure.

CARA analyzes and improves room acoustic influenced sound coloration in a two step procedure:

- determination of the basic acoustic properties of the room (**Acoustic Ambiance**) in combination with suggestions regarding the furnishings (wall materials, furniture) in order to linearize the reverberation time spectrum,
- automatic **Positional Optimization** for the loudspeakers and the listener to minimize sound wave interferences (standing waves) in the listening area.

For a detailed analysis CARA calculates the total **sound field data** at 1,000-3,000 equally distributed grid points in the room. The evaluation of the sound field data concerns the modal structure (steady state sound pressure distribution), the room response of a Dirac-Pulse excitation in the time domain, the distribution of sound coloration, the sound imaging (stereophonic sound localization), and the speech intelligibility.

CARA provides the expert with a great number of room acoustic reference numbers (frequency dependent reverberation times, sound coloration, speech intelligibility, lateral sound level, or stereophonic sound localization) derived from **sound pressure frequency responses** or **transient room responses/reverberation diagrams**.

The special function **Auralization** renders a listening test in the (virtual) room to evaluate for example sound differences due to different loudspeaker positionings. Any piece of music (two channels Stereo) may be used for this.

**CARA is structured into three functional blocks**
(italic and underlined = new functions in CARA 2.1/2.2 PLUS)

1. **Room Design**
2. Room Acoustic **Calculations**
3. **Presentation of Results** (2D and 3D Diagrams)

## Room Design:

- arbitrary floor plans (L-rooms, coupled rooms, ...), maximum size 100 x 100 m, *the wizard "New Room Design" offers a number of predefined floor plan templates (all dimensions may also be entered in non-metric units like inches or feet)*
- inside walls as partitions, columns, false ceilings, ceiling beams, as well as sloped ceilings and oblique floors (attic apartments, cinemas)
- furniture database (tables, cupboards, armchairs, etc.), or customize your furniture of several so-called 3D-objects
- additional sound absorbing sub areas (windows, pictures, carpets) can be defined within a wall
- Materials Editor: definition of customized sound absorbing materials
- **Loudspeaker Editor:** customize your loudspeaker model (cabinet styles : blocks with slanted walls), *1-5 ways loudspeakers, act./pass. subwoofers, or dipole radiating flat panels. Using the **updated (Rel. 2.2 PLUS) editor** (see **Download / Patches**) also sophisticated cabinets (e.g. composed of several cabinet sections, like a dipole hybrid LS) may be designed.*
- Loudspeaker Configurations: Stereo, Quadro, Surround (analogue, digital: 5.1, *6.1, 7.1, 8.1*), PA (Public Address)
- loudspeaker database with approx. 200 proprietary speaker models, new models can be **"downloaded"** from the internet
- Positional Optimization: *L-, T-, or cross shaped positioning regions*
- walking around in your 3D room model

## Calculations:

- automatic positional optimization for the loudspeakers and the listening place, *with symmetry constraint options (equal spacing to front and side walls)*
- room sound field calculations at 1000-3000 grid points equally distributed within a certain layer above the floor
- *reduction of calculating times for rectangular rooms (without furniture) in comparison to the latest version by a factor of up to 1000*
- calculation with real and complex reflection coefficients (optionally)
- *The additional "PLUS Functions":*
  - *Calculation and evaluation of the "Acoustic Ambiance" (reverberation time spectrum)*
  - *Calculation of the high resolution transient room response as a basis for the "Auralization" (listening test)*

## Presentation of Results:

- representation of the optimized positioning of the loudspeakers and the listening place
- listing of a survey of the room acoustics reference numbers: sound coloration, location, speech intelligibility, reverberation time and lateral sound level
- 3D representation of the frequency and time dependence of the modal structure of the sound pressure in the room
- 3D representation the temporal propagation of the sound wave fronts in the room
- 3D sound coloration, location and speech intelligibility maps of your sound room
- 2D-XY diagrams: sound pressure level frequency responses, location diagram, reverberation diagram, frequency dependence of the mean sound absorption coefficient and of the reverberation time (Sabine, Eyring, Kuttruff and CARA-T10) of your room
- *The additional "PLUS Functions":*
  - *"Acoustic Ambiance" including suggestions for linearizing the reverberation time spectrum by insertion of additional materials or furniture (already during room design)*
  - *"Auralization": listening tests e.g. for the comparison of different loudspeaker positionings*

---

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"to" is a very common word and was not included in your search. [details]

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### Sounds of New York, evidence for a preferred ear, ultrasound for ...
... as cultural stereotypes would **suggest** (4aPP1). ... acousticians are turning to
**"auralization**," or virtual acoustics, in which **computer simulations**, based on ...
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### [PDF] 03. Data Display
File Format: PDF/Adobe Acrobat - View as HTML
... Dodge wrote a piece of **computer** music entitled ... used as a basis for **auralization**
(Sonnenwald, Haberman ... Sonnenwald's work was concerned with **simulation** and
the ...
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### [PDF] PROGRAM OF The First Pan-American Õ Iberian Meeting on Acoustics ...
File Format: PDF/Adobe Acrobat - View as HTML
... These will be compared to a **computer** model, which ... sounds are played over a five-
channel **auralization** system ... These findings **suggest** that some degrees of hearing ...
acoustics.mit.edu/GOATS/2002publications/ cocurrent%20detection....pdf - Similar pages

### [PDF] Physically-based **Auralization**
File Format: PDF/Adobe Acrobat - View as HTML
... Room Acoustic **Simulation** . ... Experts Group NASA National Aeronautics and Space
Administration PC Personal **Computer** SPSS Statistical ... PHYSICALLY-BASED
**AURALIZATION** ...
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### [PDF] Application-driven design of **auralization** systems
File Format: PDF/Adobe Acrobat - View as HTML
... of the optimum acoustical conditions for speech using **auralization**. ... **Computer** models
of the same churches were made using acoustic **simulation** soft- ware. ...
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### AES Preprints: AES 115th Convention
... off-the-shelf **computer** based **simulation** programs can ... is a heavy emphasis on
"**auralization**," or the ... structures' sound characteristics using **computer** modeling ...
www.aes.org/publications/preprints/lists/115.cfm - 101k - Cached - Similar pages

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File Format: PDF/Adobe Acrobat - View as HTML
... In particular, such time delays, which are due to data transport and **computer** processing
from head-motion ... **Simulation** results **suggest** that SVS use might ...
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... These preliminary results may pave the way for next numerical **simulations** for the ...
human expertise in the decision loop, and is very **computer** time consuming ...
www.isma-isaac.be/past_conf/ isma2004/download/BookOfAbstracts.pdf - Similar pages

### [PDF] Annual Report 2001 Ørsted . DTU TECHNICAL UNIVERSITY OF DENMARK
File Format: PDF/Adobe Acrobat - View as HTML
... As these names **suggest**, several of the sections ... The use of **computer simulations**
allows the user to ... is a binaural technique called "**auralization**", and it ...
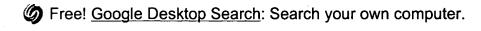www.oersted.dtu.dk/PR/annual_reports/annual2001.pdf - Similar pages

RADS2004 ABSTRACT
... on the results of those **computer simulations**, if major ... that is used in a given
**auralization**. ... Numerical **simulation** demonstrates comparison between the values in ...
rads04.iis.u-tokyo.ac.jp/abstracts.htm - 101k - Cached - Similar pages

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# NAVCON ENGINEERING NETWORK

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E-mail: webinfo@navcon.com

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# SoundPLAN - Software Modules

## Software Solutions

SoundPLAN is modular, which means that the software can customized to meet the appli needs of the user.  Modules can be added as needed.

### *A typical software package for Industrial Noise Application includes:*

**Modules**

1. Geographical Database
2. Industry Noise Propagation
3. Grid Noise Map
4. DXF Import/Export

**Additional Module Options:**

1. Indoor Factory Noise
2. Cross Sectional Map
3. Cartography
4. Expert System
5. Wall Design

### *A typical software package for OSHA Application includes:*

**Modules**

1. Geographical Database
2. Indoor Factory Noise
3. Grid Noise Map
4. Cartography

**Additional Module Options:**

1. Industry Noise Propagation
2. Expert System
3. DXF Import/Export

### *A typical software package for Road or Railroad Noise Application includ*

**Modules**

1. Geographical Database
2. Road or/and Railroad Noise Propagation
3. Grid Noise Map
4. Wall Design
5. DXF Import/Export

**Additional Module Options:**

1. Cross Sectional Map
2. Cartography
3. Facade Noise Map
4. Dimensioning of Sound Isolation of V
5. Expert System